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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,632	09/22/2003	Hui-Ling Lou	MP0318	1163

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EXAMINER
TRAN, KHAI

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/667,632	LOU ET AL.	
	Examiner	Art Unit	
	KHAI TRAN	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/27/2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-78* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-19,22-33,36-46,49-58,61-70 and 73-78* is/are rejected.

7)☒ Claim(s) *4-5,20-21,34-35,47-48,59-60,71-72* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 6/27/2007 has been entered. Claims 1-78 are pending in this Office action.

Response to Arguments

2. Applicant's arguments filed 6/27/2007 have been fully considered but they are not persuasive.

Applicant argues that Kim in view of El-Gamal fail to disclose a dimension demultiplexer that generates a demodulated symbol sequence by derotating a signal constellation of a received symbol sequence.

In response to the Applicant's argument that Kim in view of El-Gamal disclose the demultiplexer (15) as shown in Figure 5 by Kim that communicates with the demodulator (from LUT 45, see col. 5, lines 10-41) and that generates in-phase (I) and quadrature (Q) components. The de-mulitplexer (18) used to apply the corrected I value and the corrected Q value having been corrected of their respective phase error from the loop filter to the slicer (col. 3, lines 26-49).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 6-8, 10-15, 16-19, 22-23, 25-30, 31-33, 36-42, 43-46, 50-55, 56-58, 62-67, 68-70, 73,78 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (U.S. Pat. 5,602,601) in view of El-Gamal et al (US 2002/0136327).

Regarding claim 1, Kim et al disclose a phase error corrector for an HDTV reception system as shown in Figures 1-5, comprising a demodulator that generates a demodulated symbol sequence by derotating a signal constellation of a symbol sequence (see Figure 1 showing a receive signal from an antenna and processed by demodulator); a dimension demultiplexer (see Figure 5, a demultiplxer 15 and a complex demultiplxer 18) that communicates with the demodulator and that generates in-phase and quadrature components of the demodulated symbol sequence. Kim et al fail to disclose a space-time block decoder for a wireless communication system.

El-Gamal et al disclose a communication system comprising a receiver having a space-time decoder 305 as shown in Figure 3, for reconstructing the original source message. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the a space-time decoder as taught by El-Gamal et al into the teachings of Kim et al in order to maximize spatial and temporal diversity.

Regarding claim 2, Kim et al disclose a slicer (see Figure 5) that communicates with the demultiplexer.

Regarding claim 3, El-Gamal et al disclose a receiver (300) that communicates with the space-time block decoder individually decodes symbols in the received symbol sequence.

Regarding claim 6, Kim et al disclose one receiver antenna in a receiver (see figure 1).

Regarding claim 7, Kim et al disclose wherein the receive antenna receives two symbol during first and second consecutive symbol period (col. 2, line 53 to col. 6, line 45).

Regarding claim 8, El-Gamal et al disclose the space-time decoder further comprising a receiver that communicates with the space-time block decoder and that includes at least two receive antennae (see Figure 3, antennae 303-1 to 303-L).

Regarding claim 10, El-Gamal et al disclose wherein the signal constellation is generated by a quadrature phase shift keying code (QPSK, see [0048]).

Regarding claims 11-12, the implementation of the space-time block decoder in a wireless metropolitan area network is well known in the wireless networking system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the space-time decoder in the wireless metropolitan area network and wireless local area network (WLAN) into the wireless communication system as taught by El-Gamal et al in order to provide multiple services to users such as banking, home-shopping, education ...

Regarding claims 13-14, El-Gamal et al disclose mapping step used by constellation points for performing modulation (see [0034]). El-Gamal et al fail to disclose the constellation points are Gray coded. However, the use of Gray code for constellation is well known in the art for mapping constellation points.

Regarding claim 15, El-Gamal et al also disclose a bit mapping module that communicates with the slicer and that maps the constellation points to user data bits (see [0034]).

Claims 16-19, 22 are similar to claims 1-3, 6. Therefore, claims 16-19 are rejected under a similar rationale.

Claims 23, and 25-30 are similar to claims 8, 10-15. Therefore, claims 23, 25-30 are rejected under a similar rationale.

Claims 31-33, and 36-42 are similar to claims 1-3, 10-15. Therefore, claims 31-33, 36-42 are rejected under a similar rationale.

Claims 43-46, and 50-55 are similar to claims 16-19, 25-30. Therefore, claims 43-46, 50-55 are rejected under a similar rationale.

Claims 56-58, and 62-67 are similar to claims 1-3, 10-15. Therefore, claims 56-58, 62-67 are rejected under a similar rationale.

Claims 68-70, and 73-78 are similar to claims 1-3, 10-15. Therefore, claims 68-70, 73-78 are rejected under a similar rationale.

5. Claims 9, 24, 36, 49 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Bauch (US 2006/0274846 A1).

Regarding claim 9, Kim et al fail to disclose wherein at least one symbol in the received symbol sequence is encoded with an orthogonal space-time code.

Bauch discloses a reception diversity comprising at least one symbol in the received symbol sequence is encoded with an orthogonal space-time code (see abstract, [0096]). It would have been obvious to one having ordinary skill in the art at

the time the invention was made to encode the received signal with the orthogonal space-time code as taught by Bauch into the teachings of Kim et al in order to overcome restrictions implied through unit length requirements for previously known differential transmit diversity schemes from orthogonal design.

Claim 24 is similar to claim 9. Therefore, claim 24 is rejected under a similar rationale.

Claim 36 is similar to claim 9. Therefore, claim 36 is rejected under a similar rationale.

Claim 49 is similar to claim 9. Therefore, claim 9 is rejected under a similar rationale.

Claim 61 is similar to claim 9. Therefore, claim 61 is rejected under a similar rationale.

Allowable Subject Matter

6. Claims 4-5, 20-21, 34-35, 47-48, 59-60, 71-72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI TRAN whose telephone number is (571) 272-3019. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAY PATEL can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KHAI TRAN
Primary Examiner
Art Unit 2611

KT
March 27, 2007